

REMARKS

Applicant respectfully requests reconsideration and allowance of the subject patent application.

Claims 1, 2, 4-10, 21-27, 38-42 and 46¹ were rejected under 35 U.S.C. Section 103(a) as allegedly being unpatentable over St. Ville (U.S. Patent No. 5,594,651) in view of Wu *et al.* (U.S. Patent No. 5,654,077), and further in view of Yamazaki (U.S. Patent No. 6,197,624). While not acquiescing in this rejection or in the characterizations of the references in the office action, independent claims 1, 25, and 41 have been amended based on the subject matter of now-canceled claims 10-11; 27-28; and 43-44, respectively. Conforming amendments have been made to certain of the remaining dependent claims. Thus, the discussion below makes reference to the amended claims.

Applicant notes that claims 46-55 have been canceled without prejudice or disclaimer. Thus, the rejections of these claims are moot.

Independent claims 1, 25 and 41 have been amended to describe methods in which the structural fibers of a composite material are laminated in a matrix into which an impurity is introduced, the amount of the impurity introduced into the matrix being controllably variable for the respective volume increments of the object. *See, e.g.*, the description on pages 6-7 and page 28 *et seq.* of the specification.

The proposed combination of St. Ville, Wu *et al.* and Yamazaki does not teach or suggest introducing an impurity into the matrix of a composite material as claimed. In particular, Yamazaki is alleged in the office action to teach the introducing of an impurity into an object while the object is manufactured, wherein an amount of the impurity is variable for the respective volume increments of the object. In this regard, the office action references the disclosure of Yamazaki at col. 2, lines 15-33 and 35-46 which refer to, among other things, the concentration of an impurity element in a channel forming region of a crystalline silicon layer and the adding of an impurity for threshold voltage control. However, among other things, the crystalline silicon layer into which Yamazaki

¹ Applicant believes the Examiner intended to identify claim 46 (rather than claim 47) in the statement of the rejection on page 4 of the office action.

introduces impurities is not the matrix of a composite material as claimed. Moreover, the semiconductor device of Yamazaki would not have provided any teaching or suggestion with respect to such a matrix in view of the significant differences between this semiconductor device and a composite material comprised of a matrix and structural fibers.

Applicants note the reference to Castanie *et al.* (U.S. Patent No. 6,290,889) as disclosing composite materials comprised of structural fibers laminated in a matrix. However, Castanie *et al.* contains no disclosure of introducing impurities into the matrix of a composite material and thus, even if added to the proposed St. Ville-Wu *et al.*-Yamazaki combination, would not have rendered the subject matter of claims 1, 25 and 41 obvious.

Claim 3 was rejected under 35 U.S.C. Section 103(a) as allegedly being obvious over the proposed St. Ville-Wu *et al.*-Yamazaki combination, in further view of Legere *et al.* (U.S. Patent No. 6,087,571). Legere *et al.* discloses that the uniaxially oriented materials described therein may be transversely isotropic. Among other things, Legere *et al.* does not disclose introducing an impurity into the matrix of a composite material as set forth in claim 1 (from which claim 3 depends). Thus, even assuming that the combination of Legere *et al.* with the proposed St. Ville-Wu *et al.*-Yamazaki combination would have been proper and that the combination were made, the combination would not have resulted in the subject matter of claim 3.

Various references (*i.e.*, Abatangelo, Johnson *et al.*, Bonadio *et al.*, Warren, Jr., Tadros *et al.*, Slaikeu, Hermann, Phipps *et al.*, and Mavity *et al.*) are cited as allegedly showing biologic materials, bone, crushed bone, co-factors, biological cells, bio-active material, medications, antibiotics, and radioactive materials as set forth in various dependent claims. Applicant does not acquiesce in the characterizations in the office action of these references. In any event, none of these references teaches or suggests introducing an impurity into the matrix of a composite material as claimed.

New claim 56 has been added and describes specifying that the material properties of the finite elements have a particular symmetry. This claim is believed to be allowable for at least the reasons advanced with respect to claim 1 from which it depends.

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The pending claims are believed to be allowable and favorable office action is respectfully requested.

Respectfully submitted,

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